CLAIMS:

1. A method of synthesizing an output audio signal on the basis of an input audio signal, the input audio signal comprising a plurality of input sub-band signals, the method comprising the steps of:

transforming (T) at least one input sub-band signal from sub-band domain to frequency domain to obtain at least one respective transformed signal,

delaying ($D_{0...n}$) and transforming the at least one input sub-band signal to obtain at least one respective transformed delayed signal;

deriving (P) at least two processed signals from the at least one transformed signal and the at least one transformed delayed signal,

inverse transforming (T^{-1}) the processed signals from frequency domain to sub-band domain to obtain respective processed sub-band signals, and

synthesizing the output audio signal from the processed sub-band signals.

2. A method as claimed in claim 1, wherein the transforming is a cosine transforming and the inverse transforming is an inverse cosine transforming.

3. A method as claimed in claim 1, wherein the input sub-band signals comprise complex samples and wherein a real value of a given complex sample is transformed in a first transform and a complex value of the given complex sample is transformed in a second transform.

4. A method as claimed in claim 3, wherein the first transform and the second transform are separate but equal transforms.

5. A method as claimed in claim 1, wherein the processing comprises a matrixing operation.

6. A method as claimed in claim 1, wherein the processing comprises a rotation operation.

7. A method as claimed in claim 1, wherein the at least one sub-band signal includes the sub-band signal having the lowest frequency.

8. A method as claimed in claim 7, wherein the at least one sub-band signal consists of 2 to 8 sub-band signals.

9. A method as claimed in claim 1, wherein the synthesizing step is performed in a sub-band filter bank for synthesizing a time domain version of the output audio signal from the processed sub-band signals.

10. A method as claimed in claim 9, wherein the sub-band filter bank is a complex sub-band filter bank.

11. A method as claimed in claim 9, wherein the complex sub-band filter bank is a complex Quadrature Mirror Filter bank.

12. A method as claimed in claim 1, wherein the input audio signal is a mono audio signal and the output audio signal is a stereo audio signal.

13. A method as claimed in claim 1, the method further comprising the step of:

obtaining a correlation parameter which is indicative of a desired correlation between a first channel and a second channel of the output audio signal, wherein the processing is arranged to obtain the processed signals by combining the transformed signal and the transformed delayed signal in dependence on the correlation parameter, and wherein the first channel is derived from a first set of processed signals and the second channel from a second set of processed signals.

14. A method as claimed in claim 13, wherein each processed signal comprises a plurality of output sub-band signals, and wherein a first time domain channel and a second time domain channel are synthesized on the basis of the output sub-band signals, respectively, preferably in respective synthesis sub-band filter banks.

15. A method as claimed in claim 1, wherein the method further comprises the steps of:

deriving M sub-bands to generate M filtered sub-band signals on the basis of a time domain core audio signal,

generating a high-frequency signal component derived from the M filtered sub-band signals, the high-frequency signal component having N-M sub-band signals, where N>M, the N-M sub-band signals including sub-band signals with a higher frequency than any of the sub-bands in the M sub-bands, the M filtered sub-bands and the N-M sub-bands together forming the plurality of input sub-band signals.

16. A device for synthesizing an output audio signal on the basis of an input audio signal, the input audio signal comprising a plurality of input sub-band signals, the device comprising:

means for transforming (T) at least one input sub-band signal from sub-band domain to frequency domain to obtain at least one respective transformed signal,

means for delaying ($D_{0...n}$) and transforming the at least one input sub-band signal to obtain at least one respective transformed delayed signal;

means for deriving (P) at least two processed signals from the at least one transformed signal and the at least one transformed delayed signal,

means for inverse transforming (T^{-1}) the processed signals from frequency domain to sub-band domain to obtain respective processed sub-band signals, and

means for synthesizing the output audio signal from the processed sub-band signals.

17. An apparatus for supplying an output audio signal, the apparatus comprising:

an input unit for obtaining an encoded audio signal,

a decoder for decoding the encoded audio signal to obtain a decoded signal including a plurality of sub-band signals,

a device as claimed in claim 16 for obtaining the output audio signal on the basis of the decoded signal, and

an output unit for supplying the output audio signal.

18. A computer program product including a code for instructing a computer to perform the following steps:

transforming (T) at least one input sub-band signal from sub-band domain to frequency domain to obtain at least one respective transformed signal,

delaying ($D_{0...n}$) and transforming the at least one input sub-band signal to obtain at least one respective transformed delayed signal;

deriving (P) at least two processed signals from the at least one transformed signal and the at least one transformed delayed signal,

inverse transforming (T^{-1}) the processed signals from frequency domain to sub-band domain to obtain respective processed sub-band signals, and

synthesizing the output audio signal from the processed sub-band signals.